A-1 Urban Water Conservation Grant Application Cover Sheet

1. Applicant (Organization or affiliation): East Bay Municipal Utility District

2. Project Title: X-Ray Processor Recycling Capital Outlay Project

3. Person authorized to sign and submit proposal:

Name, Title	Dennis M. Diemer, General Manager
Mailing address	P.O. Box 24055, MS #804, Oakland, CA 94623
Telephone	(510) 287-0101
Fax	(510) 287-0188
E-mail	rharris@ebmud.com

4. Contact person (if different):

Name, Title	Leann Gustafson, Water Conservation Representative
Mailing address	P.O. Box 24055, MS #48, Oakland, CA 94623
Telephone	(510) 287-0898
Fax	(510) 287-1883
E-mail	lgustafs@ebmud.com

5. Funds requested (dollar amount): $152,400

6. Total local cost-share (EBMUD + voucher recipients): $28,500

    6a. Applicant (EBMUD) funds pledged : $6,000

    6b. Funding provided by local recipients: $22,500

7. Total project costs (dollar amount): $180,900

8. Estimated net water savings (acre-feet/year): 125

    Estimated total amount of water to be saved (acre-feet): 1,250

Over _10___ years

Benefit/cost ratio of project for applicant: 1.57

Estimated $/acre-feet of water to be saved: $280

9. Project life (construction): 3/03-9/04

   (measure life = 10 years)

10. State Assembly District where the project is to be conducted: 11,14,15,16,18,20

11. State Senate District where the project is to be conducted: 7,9,10

12. Congressional District(s) where the project is to be conducted: 7,9,10,11,13

13. County where the project is to be conducted: Alameda & Contra Costa

14. Do the actions in this application involve physical changes in land use, or potential future changes in land use?

    No

A-2 Application Signature Page

By signing below, the official declares the following:

The truthfulness of all representations in the application;

The individual signing the form is authorized to submit the application on behalf of the applicant;

The individual signing the form read and understood the conflict of interest and confidentiality section and waives any and all rights to privacy and confidentiality of the application on behalf of the applicant; and

The applicant will comply with all terms and conditions identified in this Application Package if selected for funding.

Signature	Name and title	Date
Dennis M. Diemer	Dennis M. Diemer, General Manager	11/27/02

Approved As To Form and Procedure:

By: _____ Date 11/26/02

for the Office of the General Counsel

A-3 APPLICATION CHECKLIST

Complete this checklist to confirm all sections of this application package have been completed.

Part A: Project Description, Organizational, Financial and Legal Information

_____A-1 Urban Water Conservation Grant Application Cover Sheet
_____A-2 Application Signature Page
_____A-3 Application Checklist
_____A-4 Description of project
_____A-5 Maps
_____A-6 Statement of work, schedule
_____A-7 Monitoring and evaluation
_____A-8 Qualification of applicant and cooperators
_____A-9 Innovation
_____A-10 Agency authority
_____A-11 Operation and maintenance (O&M)

Part B: Engineering and Hydrologic Feasibility (construction projects only)

_____B-1 Certification statement
_____B-2 Project reports and previous studies
_____B-3 Preliminary project plans and specifications
_____B-4 Construction inspection plan

Part C: Plan for Environmental Documentation and Permitting

_____C-1 CEQA/NEPA
_____C-2 Permits, easements, licenses, acquisitions, and certifications
_____C-3 Local land use plans
_____C-4 Applicable legal requirements

Part D: Need for Project and Community Involvement

_____D-1 Need for project
_____D-2 Outreach, community involvement, support, opposition

Part E: Water Use Efficiency Improvements and Other Benefits

_____E-1 Water use efficiency improvements
_____E-2 Other project benefits

Part F: Economic Justification, Benefits to Costs Analysis

_____F-1 Net water savings
_____F-2 Project budget and budget justification
_____F-3 Economic efficiency

Appendix: Benefit/Cost Analysis Tables

_____Tables 1; 2; 3; 4a, 4b, 4c, 4d; and 5

A. PROJECT DESCRIPTION, ORGANIZATION, FINANCIAL, AND LEGAL INFORMATION

A4. Description of Project

Purpose

EBMUD proposes to offer a voucher program within its 330-square-mile water service area for the retrofit of up to 50 x-ray film processors with the Water Saver/Plus recycling unit or equivalent. Installation of recycling units on 50 x-ray processors will reduce water use by an estimated 125 acre-feet per year (AFY) or 2.5 AFY for each unit installed. Water savings estimates are based on a pilot project completed by EBMUD in cooperation with the water districts of Irvine Ranch and Upper San Gabriel Valley in 2002, which retrofitted 10 x-ray processors with these units. Metropolitan Water District achieved similar results through direct installation of 8 units in southern California.

Hospitals commonly have several medical x-ray processors operating 24 hours per day, 365 days per year. Water flow rates for the 35 different processor models on the market range from 0.2 to 2.5 gallons per minute (gpm). At the higher end of this range, these processors use more than 3,500 gpd or more than 1.3 million gpy. Processors operating at 2.5 gpm are common, while those operating at 0.2 gpm are rare. In the EBMUD service area, at least 50 x-ray processors at 17 hospitals have been identified as candidates for retrofitting with recycling units. An additional 30 clinics have been identified as potential candidates for this project. The annual conservation potential is 125 AFY if the first 50 were retrofitted, and 200 acre-feet per year (AFY) if all 80 processors were retrofitted.

It is locally cost-effective to install these recycling units, with a benefit-cost ratio of 1.57. The funds solicited in this grant will be used to fund vouchers for purchase of 50 WaterSaver/Plus units or equivalent. Participating facilities will receive $3,000 for each recycling unit installed. Recipient facilities will be responsible for approximately $300 of the purchase cost of each unit installed, $150 per unit for installation, and all ongoing maintenance costs. Maintenance costs are equivalent to costs of maintaining x-ray processors without recycling units. EBMUD will fund the staff time associated with project administration and reporting requirements.

Goals

The CALFED Bay-Delta Program includes strategies to address ecosystem health, water supply reliability, water quality, and levee system integrity. Water use efficiency is critical to the successful implementation of all aspects of the CALFED Program.

As a signatory to the California Urban Water Conservation Council's (CUWCC) Memorandum of Understanding, EBMUD is committed to implementing the urban Best Management Practices (BMPs) to reduce impacts of urban water use on the Bay-Delta. This project directly relates to BMP #9, reduction in commercial, industrial, and institutional water demand, and promotes new water use efficiency technology.

Objectives
This project is designed to accelerate the rate of installation of this proven new technology. The conservation benefit of installing 50 recycling units within the EBMUD water service area is estimated at 1,250 acre-feet over the measure life of 10 years. In addition to regional water conservation, this project would help to ensure the reliability of continued medical service after a major seismic event. Following the Northridge earthquake in southern California, these units allowed hospitals to maintain life-saving diagnostic imaging with only 15 gallons of water per x-ray processor for a period of three months. Scarce water resources were saved for critical hospital operations.

Location

EBMUD is a municipal utility district that provides potable and recycled water to a population of approximately 1.3 million people. EBMUD also provides wastewater treatment services to many customers within its water service area. EBMUD's water service area includes parts of Alameda and Contra Costa counties, a portion of which consists of low-income communities. Special efforts will be made to obtain the project participation of facilities located in and serving these communities.

A5. Maps

EBMUD water service area.

(See Attachment 1)

A6. Statement of Work, Schedule

Project Plan.
EBMUD will offer a $3,000 per-unit voucher toward purchase of qualified x-ray processor recycling equipment plus $30 for installing a dedicated water meter to monitor water use and measure water savings. EBMUD also will follow up with facility managers and staff to assess satisfaction with installation and operation of the units, measure water savings of each unit, analyze the data, write and submit quarterly and final reports to the funding agency, and publish and/or otherwise present findings of the project. The vendor, C&A X-Ray, will be responsible for scheduling installations and installing equipment under separate contract with participating facilities.

Schedule

DATE	TASK	BUDGET	($) AMOUNT
March 2003	Execute contract	EBMUD agency time	$250
March 2003 – Sept. 2004	Project administration	EBMUD agency time	$5,000
June 2003-Jan. 2004	Purchase recycling units and flow meters	DWR Prop 13 funds	$151,500
June 2003-Jan. 2004	Purchase recycling units	hospital cost-share	$15,000
June 2003-Jan. 2004	Install recycling units	hospital cost-share	$7,500
July 2004	Records submitted to DWR	EBMUD agency time	$375
Sept. 2004	4th (Final) Quarter Report	EBMUD agency time	$375

Contingency costs at 15% of administration costs of $6,000	$900
Total	**$180,900**

A7. Monitoring and Evaluation.

A water meter (Neptune T-10, brass, 5/8", or equivalent) will be affixed to the existing supply line for a period of two weeks before installation of the recycling unit to determine water use. The meter will remain permanently to allow for extended tracking of water savings.

EBMUD will provide a final report to the California Department of Water Resources (DWR) on the installation process, satisfaction of medical staff with the recycling units, and results of water savings monitoring at the end of the project in September 2004.

C & A X-Ray will be responsible for equipment performance warranties on a contractual basis with participating facilities. EBMUD will compile the data for use in the CUWCC bi-annual reports and EBMUD's Water Conservation Master Plan Annual Report.

A8. Qualifications of the Applicant and Cooperators

Applicant qualifications: See resumes for Richard W. Harris and Leann M. Gustafson (Attachment 2).

External cooperators: David Crowe is the co-owner of C&A X-Ray, the sole manufacturer and vendor of this technology. C&A X-Ray will be responsible for installing the equipment and individual submeters.

A9. Innovation

If these recycling units were installed in hospitals, clinics, and other users of x-ray processors throughout the state, substantial reductions in water use would be achieved. These units also substantially reduce effluent pretreatment costs and quantity of wastewater.

X-ray processors rinse processing chemicals from the film prior to drying. In most processors, the rinse section receives a constant supply of running water, up to 2.5 gpm. The recycling unit proposed for installation in this retrofit project, Water Saver/Plus, is used in conjunction with x-ray film processors. The Water Saver/Plus holds 15 gallons of water and recirculates the water through the rinse section of the x-ray processor. A timer releases a set amount of fresh water, up to 4 gallons per hour (gph), into the recycling unit for proper temperature control.

No operational changes are necessary to use this technology. The maintenance of the recycling unit requires cleaning every 1 to 2 weeks, depending on recirculating water quality, which is comparable to the maintenance requirements of conventional x-ray processors without recycling units.

A10. Agency Authority

Authority to Submit Application and Enter Into Funding Contract with the State

The Board of Directors of the East Bay Municipal Utility District has authorized the General Manager to submit application materials to request grant funds for qualifying District programs and facilities and to execute application materials. A certified copy of Resolution No. 33237-01 is attached (Attachment 3) as evidence of such authorization.

With respect to the authority to enter into a funding contract with the State, the District's authority to enter into contracts is set forth in Public Utilities Code Sections 12721 and 12802. Section 12721 generally authorizes the District to make contracts of any nature whatsoever. More specifically, Section 12802 expressly authorizes the District to enter into contracts with the State for, among other things, the financing of enterprises in which the District is authorized to engage:

> "A district may accept, without limitation by any other provisions of this division requiring approval of indebtedness, contributions of money, rights of way, labor, materials, and any other property for the construction, maintenance, and operation of any enterprise in which the district is authorized to engage, and may enter into any contracts and cooperate with and accept cooperation from the State, or any department, instrumentality, or agency thereof, or any public agency of the State in the construction, maintenance, and operation of, and in financing the construction, maintenance, and operation of, any such enterprise". *(emphasis added)*

Statutory Authority Under Which The District Was Formed And Authorized To Operate

The District was formed under and authorized to operate pursuant to the Municipal Utility District Act of 1921 ("Act"). (Public Utilities Code Section 11501 et seq.)

No Election Required

Section 12802 of the Act expressly authorizes the District to enter into a contract with the State for the financing of any District enterprise without regard to any other provision of the Act requiring approval of indebtedness. The District knows of no requirement that an election be conducted before entering into a funding contract with the State with respect to the proposed project.

Funding Agreement Not Subject to Review By Other Government Agencies

The District knows of no requirement that other government agencies review and/or approve a funding agreement between the District and the State for the proposed project.

No Pending Litigation Impacts Financial Condition of the District Or Operation of Its Facilities

The Office of General Counsel knows of no pending litigation that may impact the financial condition of the District, the operation of its water facilities, or its ability to complete the proposed project.

A11. Operations and Maintenance

The recycling unit requires cleaning every 2 weeks to prevent chemical buildup. This is consistent with the standard maintenance schedule for x-ray processors in current use. The unit is drained, rinsed, scrubbed, rinsed again, and an algaecide is added. Annual maintenance costs are approximately $1,300, which will be borne by the participating facilities. These maintenance costs are equivalent to costs of maintaining conventional x-ray processors without recycling units. There are no operations and maintenance costs to EBMUD.

B. ENGINEERING AND HYDROLOGIC FEASIBILITY

B1. Certification Statement

Certification Statement attached (Attachment 4).

B2. Project Reports and Previous Studies

- East Bay Municipal Utility District, Upper San Gabriel Valley Water District, and Irvine Ranch Water District Joint Agency Feasibility Study.
- Metropolitan Water District, Innovative Conservation Program: Water Saver/Plus Recycling System Final Report

See Attachment 5.

B3. Preliminary Project Plans and Specifications

The configuration of existing photo-processing equipment requires each installation to be considered on an individual basis.

See Attachment 6 for schematic drawing of the Water Saver/Plus, which illustrates the typical configuration of components and operation.

B4. Construction Inspection Plan

The EBMUD Project Manager will monitor pre- and post-installation water consumption. Following the initial period of study, annual submeter readings will be solicited from participating facilities and recorded for the period of seven years as defined by grant requirements. The first year of results will be documented and reported in quarterly and final reports to the funding agency.

C. PLAN FOR COMPLETION OF ENVIRONMENTAL DOCUMENTATION AND PERMITTING REQUIREMENTS

C1. California Environmental Quality Act and National Environmental Policy Act

Not applicable.

C2. Permits, Easements, Licenses, Acquisitions, and Certifications

Not applicable.

C3. Local Land Use Plans

Not applicable.

C4. Applicable Legal Requirements

Not applicable.

D - NEED FOR THE PROJECT AND COMMUNITY INVOLVEMENT

D1. Need for the Project

The project is located within the CALFED solution area. EBMUD obtains approximately 95 percent of its water supply from the Mokelumne River, as eastside tributary to the Bay-Delta system. The estimated 125 acre-feet per year water savings from this project represents 9 percent of EBMUD's annual water conservation goal of about 1.2 million gallons per day or 1,344 acre-feet per year. During dry years, when storage levels cannot recover, water saved by conservation accrues to storage. It then remains available to serve EBMUD customers if drought conditions continue. This benefits California water resources by decreasing demand for limited regional supplies. In wet years, when storage is high, water saved through conservation becomes available for downstream benefits, including instream habitat and improvements in Delta water quality. Increased supply will trigger additional instream releases during the early years of a drought.

CALFED has established an aggressive Water Use Efficiency Program that encompasses urban and agricultural conservation and urban recycling. Water savings

achieved by this project will directly benefit CALFED and the San Francisco Bay Delta by reducing demand for water and reducing treated effluent discharged into San Francisco Bay.

D2. Community Involvement, Support, Opposition

Community involvement and outreach efforts will build primarily on relationships EBMUD already has developed with major sectors of the community, several of which are described below. No community or professional opposition is expected, as the new technology maintains or increases the quality of film processed while reducing water use and wastewater flows and increasing the reliability of x-ray processors during disruptions of water supply due to pipeline breaks or seismic events.

Office of the President, University of California: EBMUD staff currently is working with the University of California to retrofit water-using fixtures and equipment on the Berkeley campus and to formalize a statewide effort to retrofit all campuses of the University system. One component of this effort is to retrofit laboratory equipment and clinics, including x-ray processors.

California Society of Health Care Engineers: EBMUD staff has developed a productive working relationship with professional health care engineers through presentations, workshops, and water use surveys of numerous hospitals in the EBMUD water service area. Six of these facilities participated in a feasibility study of direct installation of x-ray processor recycling units completed in 2002, and several of these and others have expressed interest in retrofitting more processors if funding becomes available.

City of Berkeley, Energy Office: EBMUD currently is working with the City to develop standards and guidelines for "green business" certification. For hospitals, these standards will include water-efficient x-ray processors. These standards may be adopted or modified for use by other cities in the EBMUD service area and elsewhere.

Government Services Agency: EBMUD is working with the GSA to conduct water use surveys of all local GSA facilities, some of which have x-ray processors in their clinics.

Disadvantaged communities: Of the 17 hospitals located within the EBMUD service area, five serve disadvantaged communities. These hospitals may not have the budgets to install x-ray processor recycling units without subsidy. Special efforts will be made to seek participation from facilities located in and serving these communities.

Letters of Support (See Attachment 7)

EBMUD **HAS RECEIVED LETTERS OF SUPPORT FROM:**

- C & A X-Ray
- City of Berkeley Energy Office (mailed directly)
- Office of the President, UC System

Other water utilities, such as the Santa Clara Valley Water District, have expressed interest in participating in informational seminars to enable implementation of this

technology in their service areas. Publication and presentation of project results will build further support for this water-saving technology across the state.

E. WATER USE EFFICIENCY IMPROVEMENTS AND OTHER BENEFITS

E1. Water Use Efficiency Improvements

The target water use efficiency is 96% of the current use for x-ray processors in hospital settings. Currently, x-ray processors use an average of 850,000 gpy. With the new device, only 35,000 gpy will be needed for cooling, resulting in savings of up to more than 8 million gallons over the ten-year life of each recycling unit. The proposed project will install up to 50 recycling units, for a total savings of up to 40 million gallons or 1,250 acre-feet over the ten-year period. This efficiency will save water distribution and treatment charges and wastewater charges associated with the constant effluent.

E2. Other Project Benefits

The proposed project has other benefits that cannot be quantified, but that are directly related to CALFED's objectives for water supply reliability, ecosystem restoration, and water quality through increased awareness and implementation of additional conservation measures.

Direct installation of x-ray processor recycling units and pre-post monitoring of water use provide a vehicle for discussing local and regional water conservation issues with hospital staff and for identifying other conservation measures applicable in hospital settings.

Other benefits include decreased vulnerability of x-ray processors to disruption of water supplies during seismic events. The CUWCC MOU encourages water agencies to pursue other conservation funding partners, such as wastewater agencies. Data from this study will be used to demonstrate to wastewater agencies the mutual benefits of water conservation in the area of x-ray processing.

F. ECONOMIC JUSTIFICATION: BENEFITS TO COSTS ANALYSIS

F1. Net Water Savings

Table F1-1. Estimated Average Per-Unit Water Savings	
Flow rate for most common x-ray processor without recycling unit	2.5 gpm
Annual consumption for most common x-ray processor without recycling unit	850,000 gpy
Annual consumption for most common x-ray processor with recycling unit	35,000 gpy
Estimated annual per-unit water savings	815,000 gpy
Percent reduction in consumption	96%
Estimated annual savings in hundred cubic feet	1,089 CCFY
Estimated annual savings in acre-feet	2.5 AFY

Table F1-2. Estimated Project Water Savings and Costs	
Water savings from each recycling unit annually	815,000 gpy
Per-unit water savings in acre-feet per year	2.5 AFY
Project water savings in acre-feet per year (50 units)	125 AFY
Total savings for life of project (10 years)	1,250 AF
Project cost per AF ($180,900/1250 AF)	$145
Local cost per AF ($28,500/1250)	$23
DWR cost per AF ($152,400/1250)	$122

Table F1-3. Estimated Per-Unit Benefits and Costs to End Users					
	Annual Savings (CCF)	**Annual Savings ($)**	**Per-Unit Equipment & Installation Costs ($)**	**Above Baseline O&M $ Costs**	**10-Year $ Savings (including O&M Costs)**
Value to the customer @ $3.55/CCF (water, sewer)	1,089	3,865	450 (purchase and install)	0	38,200

Table F1-4. Benefits to Agency	
Marginal cost of water for EBMUD per AF	$280
Estimated annual dollar savings for EBMUD	$35,000
Estimated value to EBMUD over project life	$350,000
Local Investment	$28,500

F2. Project Budget and Budget Justification

ITEM	DETAIL	AMOUNT
Salaries/ Benefits:	80 hours @ $75/hour, including benefits	$6,000
Equipment:	50 recycling units @ $3,300 each and 50 meters @ $30 each	$166,500
Installation:	$150 per unit	7,500
Contingency	15% of administrative costs	$900
Total		**$180,900***

***EBMUD will use the grant funding to pay a voucher of $3,000 for each recycling unit installed and pay for meter installation of $30 per unit. Grant funds also will cover 15% of administrative costs. Voucher recipients will pay $300 per-unit equipment purchase cost and $150 per unit for installation. EBMUD will pay $6,000 in salaries and benefits for administering the project.

EBMUD contribution: $6,000

Hospital (recipient) cost-share: $22,500

Grant contribution: $152,400

(See Tables 1-4 for Project Budget)

F3. Economic Efficiency

Period of Analysis. The period of analysis for the economic evaluation is 10 years.

Inflation and escalation. Zero future inflation and escalation of costs were assumed in this analysis.

Discount rate. Table 6 as provided by Department of Water Resources was used for the discount rate.

Dollar value base year. The benefits and costs are expressed in 2002 dollars.

Multiple-funded projects. All project costs are included in the economic analysis.

Project costs (Tables 1, 2, and 3). Capital construction costs include the purchase, installation, and monitoring of WaterSaver/Plus X-Ray Processor recycling units. There is no increase in operations and maintenance costs to the District as a result of this project.

Avoided Cost of Current Supply Source (Table 4a). Avoided cost of current supply is the avoided cost for energy, chemicals and disposal for the 125 acre-feet conserved. The $65 per acre-foot rate is based on FY02 actual costs. This yields $8,125 annual avoided costs.

Alternative Cost of Future Supply Sources (Table 4b). The avoided cost of future water supply is based on reduced capital and operating costs of our future supplemental project at Freeport. It is estimated that our conservation program reduces the capital costs of the Freeport Project from $475M down to $439 by reducing the design capacity of the project from 117MGD down to 100MGD. This equates to $1,895 of capital costs saved per acre-foot of conservation. Converted to an annual savings of $138 per acre-foot of conservation (amortized over 30 years at 6%).

Conserved water will also reduce the added costs of transporting, purchase and required additional treatment of the water from Freeport. On an annual basis, this is $58 per acre-foot.

Annual EBMUD avoided costs, including capital and operations and maintenance, $25,822.

Water Supply Vendibility (Table 4c). The conservation project will allow for more power generation. Based on $20 per Mwh, 0.39 Mwh acre-ft, a 90-95% utilization and $300,000 operation and maintenance costs, yields $7 per acre-ft or $875 annually, as granted in Resolution number # 33240-1.

Appendix:Benefit/Cost Analysis Tables

Tables 1; 2; 3, 4a , 4b, 4c, 4d; and 5

Table 1: Capital Costs

	Capital Cost Category *(a)*	Cost *(b)*	Contingency Percent *(c)*	Contingency $ *(d) (bxc)*	Subtotal *(e) (b+d)*
(a)	Land Purchase/Easement			0	0
(b)	Planning/Design/Engineering			0	0
(c)	Materials/Installation	7,500		0	7,500
(d)	Structures			0	0
(e)	Equipment Purchases/Rentals	166,500		0	166,500
(f)	Environmental Mitigation/Enhancement			0	0
(g)	Construction/Administration/Overhead	6,000	15.00%	900	6,900
(h)	Project Legal/License Fees			0	0
(i)	Other			0	0
(j)	Total (1) (a + ... + i)				180,900
(k)	Capital Recovery Factor: Use Table 6				0.1359
(l)	Annual Capital Costs (j x k)				24,584

(1) Costs must match Project Budget prepared in Section F-2.

Table 2: Annual Operations and Maintenance Costs

Administration *(a)*	Operations *(b)*	Maintenance *(c)*	Other *(d)*	Total *(e)*
0	0	0	0	0

Table 3: Total Annual Costs

Annual Capital Costs (1) *(a)*	Annual O&M Costs (2) *(b)*	Total Annual Costs *(c) (a+b)*
24,584	0	24,584

(1) From Table 1, line (l)
(2) From Table 2, column *(e)*

Table 4: Water Supply Benefits
(2002 Dollars)

Net water savings (acre-feet/year) __ 125

4a. Avoided Costs of Current Supply Sources

Sources of Supply (a)	Cost of Water ($/AF) (b)	Annual Displaced Water Supply (AF) (c)	Annual Avoided Costs ($) (d) (b x c)
Distribution and Treatment	65	125	8125
			0
			0
			0
			0
Total			**8125**

4b. Alternative Costs of Future Supply Sources

Future Supply Sources (a)	Total Capital Costs ($) (b)	Capital Recovery Factor (1) (c)	Annual Capital Costs ($) (d) (bxc)	Annual O&M Costs ($) (e)	Total Annual Costs ($) (f) (d+e)
Increase Capacity of Freeport	236,875	0.0726	17,197		17,197
Freeport Operating Costs			0	8,625	8,625
			0		0
			0		0
			0		0
Total					**25,822**

(1) Use number from Capital Recovery Factor Table 6

4c. Water Supplier Revenue (Vendability)

Parties Purchasing Project Supplies (a)	Amount of Water to be Sold (AF) (b)	Selling Price ($/AF) (c)	Expected Frequency of Sales (1) (%) (d)	Expected Selling Price ($/AF) (e) (cxd)	"Option" Fee (2) ($/AF) (f)	Total Selling Price ($/AF) (g) (e+f)	Annual Expected Water Sale Revenue ($) (h) (b x g)
Power Sales	125	7	100.00%	7		7	875
				0		0	0
				0		0	0
				0		0	0
				0		0	0
Total							**875**

(1) During the analysis period, what percentage of years are water sales expected to occur? For example, if water will only be sold half of the years, enter 50% (0.5).

(2) "Option" fees are paid by a contracting agency to a selling agency to maintain the right of the contracting agency to buy water whenever needed. Although the water may not be purchased every year, the fee is usually paid every year.

Table 4d. Total Water Supply Benefits

(a) **Annual Avoided Costs of Current Supply Sources from 4a, column *(d)***	8,125
(b) **Annual Avoided Costs of Alternative Future Supply Sources from 4b, column *(f)***	25,822

Table 5: Benefit/Cost Ratio

Project Benefits ($)(1)	38,642
Project Costs ($)(2)	24,584
Benefit/Cost Ratio	1.57

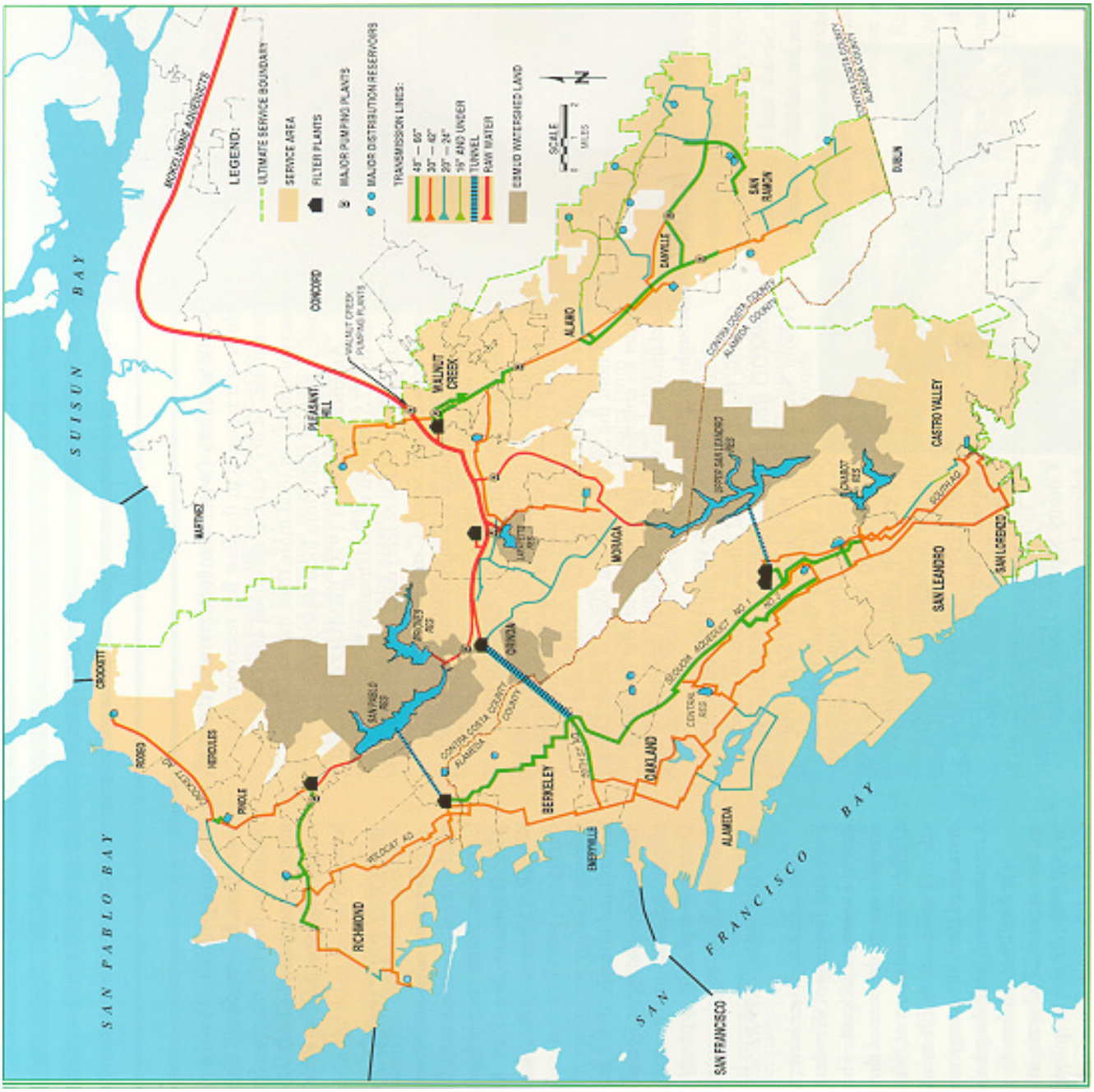
(1) From Table 4d, row (d) and Table F1-3: Total Annual Water Supply Benefits
(2) From Table 3. column *(c)* : Total Annual Costs

Attachment 1

Map of Project Area: EBMUD Water Service Area

Attachment 1 - Geographic Project Boundaries

EBMUD WATER SERVICE AREA



Attachment 2

Applicant Qualifications

RICHARD W. HARRIS, P.E.

MANAGER OF WATER CONSERVATION

EAST BAY MUNICIPAL UTILITY DISTRICT

As Water Conservation Manager, Richard Harris oversees the development and implementation of EBMUD's Water Conservation Master Plan in support of long-term water supply and demand management goals. With an annual budget of more than $5 million, and a total projected program budget of $92 million, EBMUD's water conservation efforts represent one of the largest staffed and budgeted conservation programs among major water utilities in the state. Mr. Harris is a licensed civil engineer and has been at EBMUD for more than 12 years. Prior to joining the Water Conservation Division, he managed the District's Water Recycling Program. Mr. Harris continues to serve as a District spokesperson on water use efficiency. Mr. Harris currently serves on the California Urban Water Conservation Council Steering Committee. Mr. Harris also serves as the EBMUD Energy Conservation Coordinator to the California Flex Your Power Campaign. Mr. Harris has more than 18 years experience in the environmental systems planning, engineering and resource management, and worked a number of years in the private sector specifically in the environmental engineering and energy management fields for Combustion Engineering Environmental, Inc. and Guaranteed Energy Savings, Inc.

Key Experience:

4/99 – Pres. *Manager of Water Conservation - EBMUD*

Responsible for managing the District's Water Conservation Division and directing the planning and implementation of the Water Conservation Master Plan to achieve 34 million gallons per day in water savings by the year 2020. Manage 19 professional staff and administer a $92 million capital and operating program budget, totaling in excess of $5 million annually.

4/98 - 4/99 *Senior Civil Engineer – EBMUD, DERWA*

Supervisor of ten professional staff in the Office of Reclamation and Wastewater Planning Sections. Served as the Engineering Program Manager for the DSRSD-EBMUD Recycled Water Authority, responsible for supervising and implementing a joint $90 million water recycling project. Served as a member of the Executive Management Board and Chair of the Finance Committee for the Bay Area Regional Water Recycling Program.

11/96 - 4/98 *Supervising Administrative Engineer – EBMUD*

Program Manager for $120 million Water Recycling Program. Responsible for planning and administration of new capital projects ($7M - $60M), operating projects

($38M) and consultant management. District spokesperson on all water recycling matters with the community and elected officials.

7/87 - 7/89 *Technical Engineer – Combustion Engineering Environmental, Inc.*

Conducted environmental science and engineering field operations. Participated in all phases of the Materials Damage Study for the California Air Resources Board, including site installation and monitoring, sample preparation and processing, and report writing. A member of technical team conducting field services for the Rocketdyne Wastewater Sampling Program. Services included flow meter installation and calibration, channel design, field sampling, laboratory preparation and report writing.

1/85 - 11/86 *Manager, Southern Pacific Region/Conservation Engineer - Guaranteed Energy Savings, Inc.*

Responsible for field service activities in California, Arizona, New Mexico and Texas. Responsibilities included marketing, new project development, site surveys, and management support of energy conservation systems for contracts exceeding $2 million. Performed computer system installation and complete electrical system support. Directed the work of the field electrical crews on energy savings programs; conducted contract negotiations.

Education:

Masters Degree, Civil Engineering, University of California, Los Angeles.

Bachelors Degree, Business Economics, University of California, Santa Barbara.

Bachelors Degree, Environmental Studies, University of California, Santa Barbara.

Affiliations:

Richard serves on the Board for the California Urban Water Conservation Council and is active in the American Water Works Association, Water Environment Federation, and WateReuse Association.

Leann Gustafson, Project Manager

EDUCATION

University of San Francisco, BS, Information Systems Management

Professional History

EBMUD, Water Conservation Representative, 2000-to date

Gustafson Design & Construction, Owner, 1990-to date

Experience

Water Conservation Representative, EBMUD

- Design and implement CII water use efficiency programs. Currently responsible for water use efficiency surveys and incentive programs within the industrial and institutional customer category. Responsible for financial monitoring and reporting, coordinating services with consultants, drafting contracts, marketing and public outreach, and engineering reviews of proposed technological implementations.
- Serve on EBMUD's Accounting for Water committee. Responsible for coordinating internal audits and reporting functions of District facilities. Formulate internal review processes. Perform detailed data and systems analysis.
- Responsible for data collection and database maintenance for industrial and institutional customers. Develop and implement Geographical Information System (GIS) applications for spatial data analysis of water conservation strategies.
- Structure community presentations and training workshops to advance public awareness of water conservation practices and agency support.
- Project Manager on a Joint Agency X-ray Recycling Model Project (completed 2002). Responsible for coordinating with Department of Water Resources and participating agencies to complete a study of the conservation potential of new recycling technology for photo-processing machines.
- Project Manager for a Proposition 13 grant to study feasibility of on-site recycling of wastewater streams at the Oakland Zoo.

Owner, Gustafson Design and Construction

- Operate general contracting firm, California license # 593-969.
- Supervise construction of commercial and residential projects in the San Francisco Bay Area. Responsible for design, construction, and financing. Supervise subcontractors, staff, and customer contact. Ensure compliance with all applicable codes and regulations.

Attachment 3

Authority to Submit Application

CERTIFIED A TRUE COPY
Lynelle M. Lewis
Secretary
East Bay Municipal Utility District

RESOLUTION NO. 33237-01

AUTHORIZING EXECUTION OF APPLICATION TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES (DWR) FOR WATER CONSERVATION AND GROUNDWATER RESOURCE CONSTRUCTION GRANTS AND LOANS

Introduced by Director McIntosh ; Seconded by Director Linney

WHEREAS, the Agricultural and Urban Water Conservation Programs (Chapter 8, Articles 3 and 6) under the Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act (Proposition 13) authorizes DWR to issue grants and loans to public agencies to finance feasible, cost effective water conservation projects or programs to improve water use efficiency and to provide grants for feasibility studies associated with such projects; and

WHEREAS, the Groundwater Storage Program (Chapter 9, Article 2) under the Safe Drinking Water, Clean Water, Watershed Protection and Flood Protection Act (Proposition 13) authorizes DWR to issue grants to local agencies for feasibility studies, pilot projects, and the construction of projects that enhance conjunctive management of surface water and groundwater; and

WHEREAS, the East Bay Municipal Utility District (EBMUD) Board of Directors has adopted a Water Supply Management Program Action Plan that advocates the continued development of conservation programs and groundwater resources in the EBMUD service area; and

WHEREAS, EBMUD is eligible to apply for Proposition 13 loans and grants through DWR for facilities and programs that EBMUD would otherwise have to finance through other sources; and

WHEREAS, applications for Proposition 13 loans and grant funding do not constitute a commitment on the part of EBMUD to accept an award of said loans and grants nor to implement any project.

NOW, THEREFORE, BE IT RESOLVED that the Board does hereby authorize the General Manager to submit from time to time such application materials as may be required to request Proposition 13 loans and grant funds from DWR and to attach to said application as required a certified copy of this Resolution as such evidence of such authorization.

BE IT FURTHER RESOLVED that if the District is offered such a grant, the Board does hereby authorize the General Manager to accept the grant and execute any agreements and other documents,

in a form approved by the General Counsel, necessary for distribution and administration of the grant funds.

ADOPTED this 13th day of February, 2001 by the following vote:

AYES: Directors Coleman, Linney, McIntosh, Mellon, Patterson, Richardson, and President Foulkes.

NOES: None.

ABSENT: None.

ABSTAIN: None.

Katy Foulkes
President

ATTEST:

Lynette M. Lewis
Secretary

APPROVED AS TO FORM AND PROCEDURE:

Robert C. Ledo
General Counsel

W:\RESOS\Grant Reso.doc

Attachment 4

Certification Statement

EAST BAY
MUNICIPAL UTILITY DISTRICT

B1. Certification Statement

I, Richard W. Harris, a California registered civil engineer, have reviewed the information presented in support of this application. Based on this information, and any other knowledge I have regarding the proposed project, I find that it can be designed, constructed, and operated to accomplish the purpose for which it is planned. There is a sufficient water supply for the project. The information I have reviewed to document this statement is included.

Richard W. Harris
Manager of Water Conservation

375 ELEVENTH STREET . OAKLAND . CA 94607-4240 . (510) 835-3000

Attachment 5

Project Reports and Studies

Attachment 6

Equipment Specifications

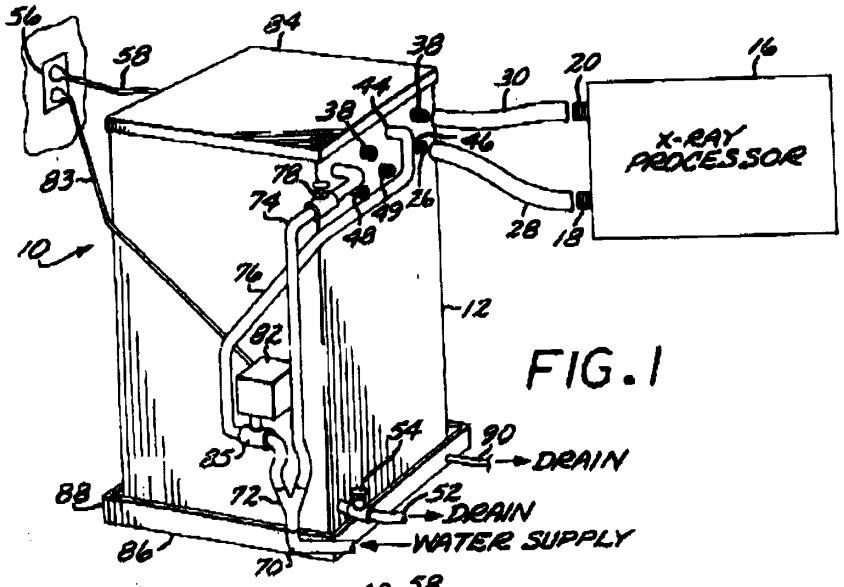


FIG. 1

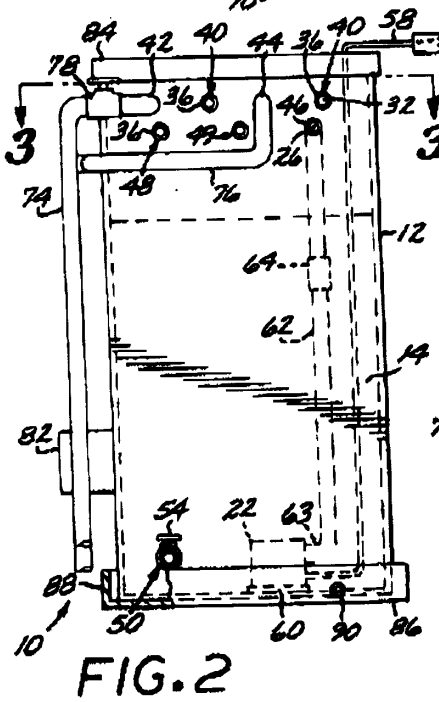


FIG. 2

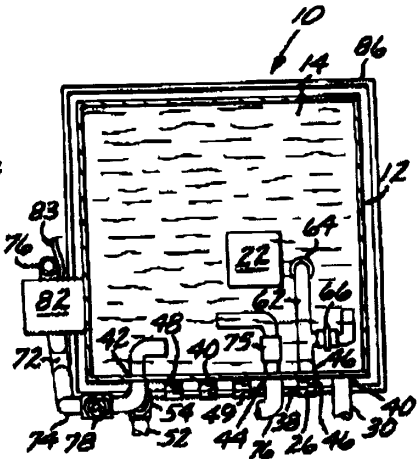


FIG. 3

Attachment 7

Letters of Support

C & A X-Ray

November 13, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
1416 Ninth Street, Room 338
Sacramento, CA 95814

Dear Ms. Prillwitz,

The East Bay Municipal Utility District (EBMUD) is in the process of applying for a California Department of Water Resources' Water Use Efficiency Program grant to fund a Water Saver/Plus X-ray Processor Retrofit project. Our agency is sending this letter to express our full support for this proposed project.

The goal of the Water Use Efficiency Program is to accelerate the implementation of cost-effective actions to conserve and recycle water throughout California. The Water Saver/Plus X-ray Processor Retrofit Project that EBMUD is proposing is designed to help achieve this goal.

As the sole manufacturer and vendor of this equipment we agree to perform all duties necessary to contact and inform potential customers of the opportunity to participate in the program, execute contracts with participating customers and install the Water Saver/Plus units and necessary meters as outlined in the grant proposal.

Sincerely,

Dave Crowe, Owner
C & A X-Ray
7326 Jefferson Street
Paramount, CA 90723

7326 Jefferson Street, Paramount, California 90723
(562) 602-2465 • (626) 793-4520 • (714) 639-9040 • (909) 276-1915 • FAX (562) 602-0826
www.caxray.com caxray@pacbell.net

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OFFICE OF THE SENIOR VICE PRESIDENT —
BUSINESS AND FINANCE

OFFICE OF THE PRESIDENT
Environmental Protection Services
1111 Franklin Street, 6th Floor
Oakland, California 94607-5200
Fax (510) 987-0752

November 21, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
1416 Ninth Street, Room 338
Sacramento, CA. 95814

Dear Ms. Prillwitz,

Water conservation is a vital component of the CalFed Bay Delta Program. As such, CalFed should promote conservation programs that are proven. The proposed East Bay Municipal Utility District X-ray Processor Retrofit Grant that EBMUD is currently applying for may help speed up the market transformation toward implementation of recycling units at all x-ray processors. Additionally, this project will help to insure the continued operation of our vital emergency services during times of crisis.

We urge CalFed to fund the grant proposal for this project because the water savings from this program will immediately benefit the Delta.

Sincerely,

David Belk

David Belk
Director
Environmental Protection Services

Office of the City Manager

November 21, 2002

Ms. Marsha Prillwitz
California Department of Water Resources
Office of Water Use Efficiency
1416 Ninth Street, Room 338
Sacramento, CA. 95814

Dear Ms. Marsha Prillwitz:

Water conservation is a vital component of the City of Berkeley's overall energy conservation programs. Our Residential Energy Conservation Ordinance (RECO) and Commercial Energy Conservation Ordinance (CECO) each have water conservation measures that save energy by reducing water use, and help preserve water supplies in times of drought or emergency.

We urge you to fund and support water conservation programs that are proven to be effective. Right now there is technology available that will help hospitals and laboratories within the CalFed Bay Delta Program to recycle water, rather than waste it. The proposed East Bay Municipal Utility District X-ray Processor Retrofit Grant as applied for by EBMUD will reduce water used in x-ray processing by recycling it through the machines.

Funding this grant proposal will make water recycling units more affordable for hospitals and laboratories that process large quantities of x-rays. Further, it, and may help speed up the market transformation toward implementation of recycling units at all x-ray processors.

Additionally, this project will help to insure the continued operation of our vital emergency services during times of crisis.

We urge CalFed to fund the grant proposal for this project. The water savings from this project will immediately benefit the Delta and aid in its program goals.

Sincerely,

Weldon Rucker
City Manager

CC: Stephen Barton
Neal De Snoo

2180 Milvia Street, Berkeley, CA 94704 Tel: 510.981.5434 TDD: 510.981.6903 Fax: 510.981.5450
E-mail: ned2@ci.berkeley.ca.us